The Business, Energy and Industrial Strategy Committee Inquiry into the Revised Energy National Policy Statements (NPS)

Written evidence submitted by Dr Nick Hughes, UCL Institute for Sustainable Resources

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The following submission represents the views of Dr Nick Hughes, an academic researcher at the Institute for Sustainable Resources, University College London (UCL). Dr Hughes has broad expertise in low carbon energy policy and transitions, having published articles, reports and advice on a range of topics including innovation for net zero, renewable electricity systems, electric vehicles, carbon capture and storage, and hydrogen. The submission focusses primarily on the Draft Overarching National Policy Statement for Energy (EN-1), and on the following two questions from the Call for Evidence:

- How effectively does the revised NPS reflect Government's policy proposals in the Energy White Paper?
- How effectively does the revised NPS support the Government's targets for net zero by 2050?

A. Executive summary

A.1. The revised Energy National Policy Statements (NPSs) are broadly well-aligned with and cognisant of the Government's Energy White Paper and its net-zero targets. However, there are occasional lapses in which the full implications of these commitments are not made sufficiently clear. In terms of infrastructure planning, 2050 is around the corner. Decisions that are taken now will have a material impact on the options available for the system in 2050. Therefore, planning decisions in every sector from now on need to be net-zero compliant.

A.2. The NPSs, especially EN-1 and EN-4, should be explicit that existing fossil fuel infrastructure is on a transition pathway involving a dramatic reduction in the use of fossil fuels and a conversion to uses consistent with net-zero; and that any new investments should be aligned with this trajectory.

A.3. The major new requirement of electric vehicle charging infrastructure should have its own NPS.

A.4. The NPSs should be revised to remove ambiguities and clarify that reaching net-zero will mean the near-total elimination of unabated fossil fuels from all but the very hardest to decarbonise demands, such as aviation. It should be ensured that the language emphasises not the prolongation of the fossil fuel era, but rather the rapidly

closing window for new unabated fossil fuel investments, and the urgent need for fossil fuel infrastructure to undertake net-zero consistent transitions, in order to avoid obsolescence.

A.5. The exclusion of onshore wind from the category of nationally significant infrastructure project does not reflect broad public opinion or economic reality. Onshore wind should be included in the NPSs.

B. How effectively does the revised NPS reflect Government's policy proposals in the Energy White Paper?

B1. The Energy White Paper (2020) is clear on the need for investments in new low carbon infrastructures, in order, for example, to support a power system which is 'fully decarbonised,' and to support the mass deployment of electric vehicles. However, the White Paper also importantly pays attention to how existing fossil fuel infrastructures can undergo a transition consistent with net zero. It pledges to ensure that 'the natural gas markets and networks evolve' into 'the networks of the future which will need to accommodate technologies such as hydrogen and Carbon Capture, Usage and Storage'; to 'provide opportunities for oil and gas companies to repurpose their operations away from unabated fossil fuels to abatement technologies such as carbon capture, utilisation and storage (CCUS) or clean energy production such as renewables and hydrogen'; and to 'support the UK oil and gas sector to repurpose its existing infrastructure in support of clean energy technologies**.'**

With robust and timely decision making, there are opportunities for fossil fuel infrastructures to be prepared cost effectively to be compatible with a net-zero energy system, for example by making sure that gas pipeline upgrades are hydrogen-ready,[1] and by building on fossil fuel extraction and pipeline infrastructure for the purpose of creating CCS hubs.[2]

However, the NPSs are not always sufficiently clear about this transitional element. For example, Paragraph 3.4.2 of the Draft Overarching National Policy Statement for Energy (EN-1), lists requirements for gas infrastructure. To these points should be added a stipulation that any new investments in gas infrastructure should be consistent with the transition to net zero – that is, new infrastructure should be compatible with the ongoing transition away from current uses of networks – especially those used to transport fossil fuels – and towards new networks, such as for the transportation of hydrogen and CO_2 for storage.

Recommendation: The NPSs, especially EN-1 and EN-4, should be explicit that existing fossil fuel infrastructure is on a transition pathway involving a dramatic reduction in the use of fossil fuels and a

[1] E4Tech, UCL Energy Institute and Kiwa Gastec (2015) Scenarios for deployment of hydrogen in contributing to meeting carbon budgets and the 2050 target. Available at: https://www.theccc.org.uk/wp-content/uploads/2015/11/E4tech-for-CCC-Scenarios-for-deployment-of-hydrogen-in-contributing-to-meeting-carbon-budgets.pdf

[2] Hughes, N., Watson, J. and Ekins, P. (2018) Response to BEIS Committee carbon capture, usage and storage (CCUS) inquiry. Available at: https://ukerc.ac.uk/publications/response-to-ccus-inquiry/

conversion to uses consistent with net-zero; and that any new investments should be aligned with this trajectory.

B2. Electric vehicles are key to the decarbonisation of surface transport, and publicly available charging infrastructure is crucial to the viability and wide uptake of electric vehicles.[3]

The Energy White paper declares support for 'the rollout of charging and associated grid infrastructure along the strategic road network, to support drivers to make the switch to EVs ahead of the phase out of the sale of new petrol and diesel cars and vans by 2030, and hybrids with significant zero emission capability by 2035.'

Electric vehicle charging infrastructure should be treated as a nationally significant infrastructure.

Recommendation: The major new requirement of electric vehicle charging infrastructure should have its own NPS.

C. How effectively does the revised NPS support the Government's targets for net zero by 2050?

C1. The revised NPSs are in many places well-aligned with the Government's targets for net zero by 2050. However, the NPSs contain several statements which introduce unhelpful ambiguity about the compatibility of unabated fossil fuels with net zero.

Paragraph 2.3.8 of the Overarching NPS (EN1) notes that the net zero transformation 'cannot be instantaneous,' continuing, 'the use of unabated natural gas and crude oil fuels for heating, cooking, electricity and transport, and the production of many everyday essentials… will still be needed during the transition to a net zero economy.' This misleadingly puts the focus on the continuation of unabated fossil fuels, underplaying the fact that net zero ultimately must mean virtually zero unabated fossil fuels in almost all sectors, especially for demands such as heating, cooking, electricity and surface transport. In the CCC's 'Balanced Net Zero Pathway', presented in their Sixth Carbon Budget report of 2020, the only sectors which still have any more than absolutely marginal greenhouse emissions in 2050, are agriculture, aviation and waste. It would therefore be more aligned to the Government's net-zero targets for the language of the NPS to stress the ultimate goal of virtually zero unabated fossil fuels in all but a very few sectors, of the rapidly closing window for new investments based on unabated fossil fuels, and of the need for fossil fuel infrastructure to transition towards net-zero consistent uses, if it is not to become obsolete.

[3] Grubb, M., Drummond, P. and Hughes, N. (2021) The Shape And Pace Of Change In The Transport Transition: Sectoral dynamics and indicators of progress. Available at: https://www.wemeanbusinesscoalition.org/wp-content/uploads/2021/05/Shape-And-Pace-Of-Change-In-The-Transport-Transition-1.pdf

Paragraph 2.3.9 of the Overarching NPS (EN1) makes an unsubstantiated claim that 'some limited residual use of unabated natural gas and crude oil may even be needed beyond 2050', before admitting that no detailed assessment of this claim has been made, due to 'policy uncertainties.' It is unclear then what purpose this claim serves. The critical uncertainty with regard to any residual greenhouse gas emissions in 2050 is what quantity of negative emissions will be available to compensate for them – but any prudent assessment must err on the side of caution and assume a very limited availability of negative emissions, due to sustainability concerns of land-based negative emissions, and technological uncertainties around engineering approaches such as direct air capture. In this context, the priority sectors requiring offsets will be those which are extremely hard to mitigate – agriculture, aviation and waste.[4] The concluding statement of Paragraph 2.3.9, that unabated natural gas and crude oil use 'can be consistent with our net zero target if any emissions are balanced by negative emissions from GHG Removal technologies' is potentially misleading, if it is not clarified that this does not apply to emissions from demands such as heating, cooking, electricity, surface transport and industry. It is unlikely that there will be sufficient available negative emissions to offset significant unabated emissions from these demands.

Recommendation: The NPSs should be revised to remove ambiguities and clarify that reaching net-zero will mean the near-total elimination of unabated fossil fuels from all but the very hardest to decarbonise demands, such as aviation. It should be ensured that the language emphasises not the prolongation of the fossil fuel era, but rather the rapidly closing window for new unabated fossil fuel investments, and the urgent need for fossil fuel infrastructure to undertake net-zero consistent transitions, in order to avoid obsolescence.

C2. Public support in the UK for onshore wind remains high (70% according to BEIS Public Attitudes Tracker[5]), and onshore wind is the cheapest generator of low carbon energy – its global weighted average cost is now lower than the lowest cost fossil fuel generators[6]. The exclusion of onshore wind from the category of nationally significant infrastructure project does not reflect broad public opinion or economic reality.

Recommendation: Onshore wind should be included in the NPSs.

Acknowledgments

This response has been prepared by Dr Nick Hughes of the UCL Institute for Sustainable Resources. I would be pleased to speak further about this response. Please contact nicholas.hughes@ucl.ac.uk.

[4] CCC (2020) The Sixth Carbon Budget – the UK's Path to Net Zero
[5] BEIS Public Attitudes Tracker (March 2021, Wave 37, UK). Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/985092/BEIS_PAT_W37_-_Key_Findings.pdf
[6] IRENA (2021) Renewable Power Generation Costs in 2020. Available at: https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2021/Jun/IRENA_Power_Generation_Costs_2020.pdf